Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Original) A method for forming a magnetic memory cell junction, comprising:

patterning a mask layer above a stack of layers;

etching exposed portions of the stack of layers to a level spaced above a tunneling barrier layer of the stack of layers; and

implanting dopants into remaining portions of the stack of layers arranged above the tunneling barrier layer.

2. (Original) The method of claim 1, wherein the step of etching comprises etching one or more magnetic layers of the stack of layers.

3. (Original) The method of claim 2, wherein the step of etching comprises etching to a level within one of the magnetic layers.

4. (Original) The method of claim 1, wherein the step of etching comprises etching between approximately 20% and approximately 95% of a thickness of the stack of layers arranged above the tunneling barrier layer.

5. (Original) The method of claim 1, wherein the step of implanting comprises oxidizing the remaining portions of the stack of layers arranged above the tunneling barrier layer.

6. (Original) The method of claim 1, wherein the step of implanting comprises nitriding the remaining portions of the stack of layers arranged above the tunneling barrier layer.

7. (Original) The method of claim 1, wherein the step of implanting is adapted to prevent the introduction of dopants into portions of the stack of layers underlying the tunneling barrier layer.

8. (Original) The method of claim 1, wherein a magnetic layer underlying the tunneling barrier layer comprises a material adapted to prevent the introduction of dopants within the magnetic layer during the step of implanting.

9. (Original) A method for forming a magnetic memory cell junction, comprising:

patterning a mask layer above a stack of layers; and

alternately etching and implanting dopants into exposed portions of the stack of layers.

10. (Original) The method of claim 9, wherein the step of alternately etching and implanting comprises:

generating veils along sidewalls of the patterned stack of layers; and

implanting dopants into the veils.

11. (Original) The method of claim 10, wherein the step of alternately etching and implanting further comprises removing the doped veils.

12. (Original) The method of claim 9, wherein the step of alternately etching and implanting comprises etching a greater amount of the stack of layers than the amount of the stack of layers implanted with dopants during the step of implanting.

13. (Original) The method of claim 9, wherein the step of alternately etching and implanting comprises oxidizing the exposed portions of the stack of layers.

14. (Original) The method of claim 12, wherein the step of alternately etching and implanting further comprises nitriding the exposed portions of the stack of layers.

15. – 20. (Canceled)

21. (New) The method of claim 9, wherein the step of alternately etching and implanting is initiated with etching exposed portions of the stack of layers.

22. (New) The method of claim 9, wherein the step of alternately etching and implanting is initiated with implanting dopants into exposed portions of the stack of layers.

23. (New) A method for forming a magnetic memory cell junction, comprising:

patterning a mask layer above a stack of layers;

etching exposed portions of the stack of layers in alignment with the mask layer, wherein the step of etching comprises generating veils along sidewalls of the patterned stack of layers;

implanting dopants into the veils; and

reiterating the steps of etching and implanting.

24. (New) The method of claim 23, wherein the step of reiterating the step of etching comprises removing doped veils and generating new veils.

25. (New) The method of claim 23, wherein the step of reiterating the step of etching comprises etching a greater amount of the stack of layers than the amount of the stack of layers implanted with dopants during the step of implanting.

26. (New) The method of claim 23, wherein the step of implanting comprises at least one of:

oxidizing the exposed portions of the stack of layers; and

nitriding the exposed portions of the stack of layers.